

**REMARKS/ARGUMENTS**

Applicants have received and carefully reviewed the Office Action of the Examiner mailed January 27, 2006. Claims 1-34 remain pending, with claims 1-9 and 17-25 withdrawn from consideration. Claims 11, 12, 15, and 26 have been amended. Support for the amendments is found in the specification, claims, and drawings as originally filed. No new matter has been added. Reconsideration and reexamination are respectfully requested.

**Restriction**

Applicants hereby affirm the election of Group I, claims 10-16 and 26-34, drawn to a structure with catalytic island for nanotube growth.

**Rejections under 35 U.S.C. § 112, first paragraph**

Claim 26 is rejected as failing to comply with the enablement requirement. The Examiner asserts that the specification only has support for an island made of a catalyst and a first layer comprising the material of claim 27. Applicants respectfully traverse the rejection. Applicants submit that claim 26, as currently amended, complies with the enablement requirement. Withdrawal of the rejection is respectfully requested.

**Rejection under 35 U.S.C. § 102(b), (e)**

Claims 26-28, 30, 33, and 34 are rejected as being anticipated by Son et al. (US 2004/0161929). Applicants traverse the rejection. Independent claim 26, as amended, recites:

Application Serial No. 10/749,637  
Amendment dated April 27, 2006  
Reply to Office Action Dated January 27, 2006

26. (currently amended) An apparatus comprising:  
an insulating substrate;  
a conductive material deposited on the substrate;  
a passivation material deposited on the conductive material, wherein one or more vias are formed through the passivation material to the conductive material; and  
an island of a catalytic material formed in and on the vias to the conductive material.

Son et al. do not appear to teach such an apparatus. Son et al. appear to teach a device having a substrate 401, an emitter electrode 410 on the substrate, a resistor layer 420 over the electrode, a metal barrier layer 430 on the resistor layer, a catalyst layer 510 over the barrier layer, and a protective layer on the catalyst layer. See paragraphs 0040-0043 and FIG. 8. Son et al. do not appear to teach an island of catalytic material formed in an on vias through a passivation material to a conductive material, as is recited in the independent claim. Additionally, there is no motivation for one of ordinary skill in the art to modify the device of Son et al. to achieve the claimed apparatus. Son et al. do not appear to teach each and every element of independent claim 26 or the claims dependent thereon. Reconsideration and withdrawal of the claims are respectfully requested.

Claims 26 and 34 are rejected as being anticipated by Lee et al. (US 6,339,281 B2). Lee et al. appear to teach a structure having a cathode electrode 2 formed on a glass substrate 1, and a catalyst layer 9 on the electrode 2. See column 4, lines 2-3 and 28-36, and FIG. 2H. Lee et al. do not appear to teach an apparatus having an insulating substrate, a conductive material deposited on the substrate, a passivation material deposited on the conductive material, wherein one or more vias are formed through the passivation material to the

conductive material, and an island of a catalytic material formed in and on the vias to the conductive material, as is recited in independent claim 26 as amended. Additionally, there is no motivation for one of ordinary skill in the art to modify the structure of Lee et al. to achieve the claimed apparatus. Reconsideration and withdrawal of the rejection are respectfully requested.

Claims 26, 27, and 34 are rejected as being anticipated by Hsu (US 6,890,233 B2). Hsu does not appear to teach an apparatus having an insulating substrate, a conductive material deposited on the substrate, a passivation material deposited on the conductive material, wherein one or more vias are formed through the passivation material to the conductive material, and an island of a catalytic material formed in and on the vias to the conductive material, as is recited in independent claim 26 as amended. Additionally, there is no motivation for one of ordinary skill in the art to modify the structure of Hsu to achieve the claimed apparatus. Reconsideration and withdrawal of the rejection are respectfully requested.

**Rejection under 35 U.S.C. § 103**

Claims 10-16, 28, and 29 are rejected as being unpatentable over Son et al. in view of Shen et al. (US 6,143,474) and further in view of Zenke et al. (US 5,187,557). The Examiner acknowledges that Son et al. fail to teach a layer of HfN and do not teach the composition of the resistor layer. The Examiner cites Zenke as disclosing that titanium nitride and hafnium nitride are routinely interchangeable in semiconductor applications. Shen et al. is cited as teaching that a resistor layer is an oxide layer. The Examiner asserts that it would

Application Serial No. 10/749,637  
Amendment dated April 27, 2006  
Reply to Office Action Dated January 27, 2006

have been obvious to use a conductive oxide layer because Shen teaches that a resistor layer is an oxide layer. Applicants respectfully traverse the rejection.

Son et al. appear to teach a device having a substrate, electrode, resistor layer, barrier layer, catalyst layer, and protective layer. See FIG. 8. Applicants submit that there is no motivation for one of ordinary skill in the art to modify the device of Son et al. to achieve the invention as claimed. Shen et al. appear to teach a structure in which a silicon dioxide layer is coated onto a substrate, is masked and etched to make a single layer structure with different resistance values. See column 3, line 48 through column 4, line 22. Applicants submit that there is no motivation for one to combine the teachings of Shen et al. and Son et al., and that even if one did, the resulting device would appear to be a single layer resistor. None of Son et al., Zenke et al., or Shen appear to teach the structure as recited in independent claims 10 and 13, or the claims dependent thereon. Reconsideration and withdrawal of the rejection are respectfully requested.

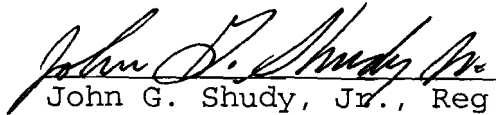
Claim 31 is rejected as being unpatentable over Son et al. in view of Gossen (US 5,710,656) or Liu et al. (US 6,268,615). Claim 32 is rejected as being unpatentable over Son et al. in view of Shen. Son et al. do not appear to teach the basic elements of independent claim 26, as amended, from which claims 31 and 32 ultimately depend. None of Gossen, Liu et al. or Shen appear to provide what Son et al. lack. Thus, any combination of Son et al., Gossen, Liu et al., or Shen also fails to teach or suggest the elements of claims 31 and 32. Reconsideration and withdrawal of the rejections are respectfully requested.

Application Serial No. 10/749,637  
Amendment dated April 27, 2006  
Reply to Office Action Dated January 27, 2006

Reconsideration and reexamination are respectfully requested. It is submitted that, in light of the above remarks, all pending claims are now in condition for allowance. If a telephone interview would be of assistance, please contact the undersigned attorney at 612-677-9050.

Respectfully submitted,

Date: 04/27/2006



John G. Shudy, Jr., Reg. No. 31,214  
CROMPTON, SEAGER & TUFTE, LLC  
1221 Nicollet Avenue, Ste. 800  
Minneapolis, MN 55403  
Telephone: (612) 677-9050  
Facsimile: (612) 359-9349